

Research and Special Programs Admin., DOT

§ 179.400-4

DOT specification	106A500-X	106A800-X	110A500-W	110A600-W	110A800-W	110A1000-W
Minimum required bursting pressure, psig	(¹)	(¹)	1250	1500	2000	2500
Minimum thickness shell, inches	¹³ / ₃₂	¹¹ / ₁₆	¹¹ / ₃₂	³ / ₈	¹⁵ / ₃₂	¹⁹ / ₃₂
Test pressure, psig (see § 179.300-16)	500	800	500	600	800	1000
Safety relief devices, psig (see § 179.300-15)
Start-to-discharge, or burst maximum, p.s.i.	375	600	375	450	600	700
Vapor-tight, minimum psig	300	480	300	360	480	650

¹ None specified.

(b) [Reserved]

[29 FR 18995, Dec. 29, 1964, Redesignated at 32 FR 5606, Apr. 5, 1967, and amended by Amdt. 179-10, 36 FR 21355, Nov. 6, 1971; Amdt. 179-40, 52 FR 13049, Apr. 20, 1987; 65 FR 58632, Sept. 29, 2000; 66 FR 45390, Aug. 28, 2001]

§ 179.302 [Reserved]

Subpart F—Specification for Cryogenic Liquid Tank Car Tanks and Seamless Steel Tanks (Classes DOT-113 and 107A)

SOURCE: Sections 179.400 through 179.401-1 appear at 48 FR 27708, June 16, 1983 (Amdt. 179-32), unless otherwise noted.

Sections 179.500 through 179.500-18 appear at 29 FR 18995, Dec. 29, 1964, unless otherwise noted. Redesignated at 32 FR 5606, Apr. 5, 1967.

§ 179.400 General specification applicable to cryogenic liquid tank car tanks.

§ 179.400-1 General.

A tank built to this specification must comply with §§ 179.400 and 179.401.

§ 179.400-3 Type.

(a) A tank built to this specification must—

(1) Consist of an inner tank of circular cross section supported essentially concentric within an outer jacket of circular cross section, with the out of roundness of both the inner tank and outer jacket limited in accordance with Section VIII, Division I, Paragraph UG-80 of the ASME Code;

(2) Have the annular space evacuated after filling the annular space with an approved insulating material;

(3) Have the inner tank heads designed concave to pressure; and

(4) Have the outer jacket heads designed convex to pressure.

(b) The tank must be equipped with piping systems for vapor venting and transfer of lading, and with pressure relief devices, controls, gages and valves, as prescribed herein.

§ 179.400-4 Insulation system and performance standard.

(a) For the purposes of this specification—

(1) *Standard Heat Transfer Rate (SHTR)*, expressed in Btu/day/lb of water capacity, means the rate of heat transfer used for determining the satisfactory performance of the insulation system of a cryogenic tank car tank in cryogenic liquid service (see § 179.401-1 table).

(2) *Test cryogenic liquid* means the cryogenic liquid, which may be different from the lading intended to be shipped in the tank, being used during the performance tests of the insulation system.

(3) *Normal evaporation rate (NER)*, expressed in lbs. (of the cryogenic liquid)/day, means the rate of evaporation, determined by test of a test cryogenic liquid in a tank maintained at a pressure of approximately one atmosphere, absolute. This determination of the NER is the NER test.

(4) *Stabilization period* means the elapsed time after a tank car tank is filled with the test cryogenic liquid until the NER has stabilized, or 24 hours has passed, whichever is greater.

(5) *Calculated heat transfer rate*. The calculated heat transfer rate (CHTR) is determined by the use of test data obtained during the NER test in the formula:

$$q = [N(\Delta h)(90-t_i)] / [V(8.32828)(t_s-t_r)]$$

Where: